

capable of exhibiting electrical conductivity upon oxidative doping; and

*C1  
cancel*  
b) irradiating the pre-doped composition with electromagnetic radiation, thus producing an electrically conductive polymeric material.

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*C2*  
4. (Amended) The method according to claim 3, wherein the viologen salt is grafted onto a suitable substrate utilizing a heat and/or UV-induced treatment to form a viologen salt-bearing substrate.

5. (Amended) The method according to claim 3, wherein the viologen salt is formed in situ in contact with the polymeric material.

6. (Amended) The method according to claim 3, wherein a surface of the viologen salt-bearing substrate is partially or completely coated with the polymeric material.

7. (Amended) The method according to claim 1 wherein the polymeric material is contacted with the viologen salt by mixing the polymeric material and the viologen salt prior to forming a coating or film of the mixture.

8. (Amended) The method according to claim 1 wherein a coating of the polymeric material is deposited on a suitable substrate to form a polymer-coated substrate.

9. (Amended) The method according to claim 8, wherein the viologen salt is deposited on the polymer-coated substrate to form a substrate coated with polymer and viologen salt.

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C3  
11. (Amended) The method according to claim 1 wherein at least one of the 1,1'-substituents of the viologen salt are independently selected from an alkyl group or a benzyl group.

C4  
13. (Amended) The method according to claim 12, wherein the viologen salt moiety is present in the backbone of the polymeric viologen salt.

14. (Amended) The method according to claim 12, wherein the viologen salt moiety is present as a side chain of the polymeric viologen salt.

C5  
21. (Amended) The method according to claim 34 wherein vinyl benzyl halide is used.

C6  
23. (Amended) An article comprising an electrically conductive polymeric material prepared by (I) a method comprising:

a) contacting a polymeric material capable of exhibiting electrical conductivity upon oxidative doping with a viologen salt to form a pre-doped composition; and

b) irradiating the pre-doped composition with electromagnetic radiation, thereby obtaining an electrically conductive polymeric material;

or by (II) a method comprising:

a) providing

a vinyl alkyl halide grafted low density polyethylene film substrate;

an alkyl halide; and

4,4'-bipyridine;

b) contacting the grafted film substrate with the 4,4'-bipyridine for a time sufficient to permit reaction therebetween;

c) subsequently contacting the modified grafted film substrate with the alkyl halide for a time sufficient to permit the formation of a viologen salt-grafted film;

d) coating the viologen salt-grafted film with polyaniline to form a polyaniline-coated film; and

e) exposing the polyaniline-coated film to near-ultraviolet radiation; thereby obtaining an electrically conductive polymeric material.

or by (III) a method comprising;

a) providing a vinyl benzyl grafted film substrate;

b) reacting the vinyl benzyl grafted film with an equimolar mixture of 4,4' bipyridine and p-xylene dihalide to form a viologen salt-grafted film;

c) coating the viologen salt-grafted film with polyaniline to form a polyaniline-coated film; and

d) exposing the polyaniline-coated film to near-ultraviolet radiation;

thereby obtaining an electrically conductive polymeric material.

C6  
cancel

34. (Amended) The method according to claim 9 wherein the substrate coated with polymer and viologen salt is formed by a method comprising:

a) providing a low density polyethylene film substrate; a solution of aniline or pyrrole; ammonium persulfate; a vinyl alkyl halide or vinyl benzyl halide; an alkyl halide; and 4,4'-bipyridine;

CJ b) immersing the polyethylene film substrate into the solution of aniline or pyrrole and ammonium persulfate for a period sufficient to form a polymeric coating on the substrate;

c) contacting the coated substrate with the vinyl alkyl halide or vinyl benzyl halide;

d) subjecting the mixture to UV or near UV irradiation for a time sufficient to form a vinyl alkyl halide or vinyl benzyl halide grafted substrate; and

e) forming the viologen on the vinyl alkyl halide or vinyl benzyl halide grafted substrate via reaction with 4,4' bipyridine and an alkyl halide.

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Please add the following new claim:

C8 --36. (new) A method for preparing an electrically conductive polymeric material comprising:

a) providing a vinyl benzyl grafted film substrate;

b) reacting the vinyl benzyl grafted film with an equimolar mixture of 4,4' bipyridine and p-xylene dihalide to form a viologen salt-grafted film;

*C8  
cancel* c) coating the viologen salt-grafted film with polyaniline to form a polyaniline-coated film; and

d) exposing the polyaniline-coated film to near-ultraviolet radiation to obtain an electrically conductive polymer.

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